

REMARKS

The Office Action dated October 22, 2004, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted in conjunction with a Request for Continued Examination.

Claims 12, 24, 27 and 28 are amended to more particularly point out and distinctly claim the subject matter of the invention. New claims 29-35 are added. No new matter is added, and support for the amendments and new claims may be found throughout the specification, for example, on page 1, lines 31-34, page 5, lines 1-7 and lines 19-31, page 7, lines 3-8 and lines 18-21, and page 8, lines 11-32. Claims 12-35 are pending in the present application and are respectfully submitted for consideration.

As a preliminary matter, applicants acknowledge with appreciation the courtesy extended to applicants' representative during the interview with the Examiner conducted on January 13, 2005.

Claims 12, 24, 27 and 28 were objected to for informalities. These claims are amended to resolve the informalities. Applicants submit that the claims comply with accepted U.S. patent practice.

Claims 12-17, 19, 23-24 and 27-28 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by European Patent Application Publication EP 0 847 146 A2 (Endo et al.). The Office Action took the position that Endo taught all the elements of these claims. Applicants respectfully submit that the cited reference does not disclose or suggest all the features of any of the presently pending claims.

Claim 12, upon which claims 13-17, 19 and 23 are dependent, recites a method for controlling transmission power in a radio system having a transmitting end and a receiving end. The method includes transmitting a digital signal from the transmitting end to the receiving end. The method also includes receiving the digital signal at the receiving end. The method also includes setting an initial value of the transmission power so that no pseudo errors are detected, a pseudo error defining an instant when a right bit or symbol decision was made, but a margin for the right bit or symbol decision was smaller than a limit value so that an actual error did not occur. The method also includes monitoring pseudo error occurrence in the received signal at the receiving end. The method also includes decreasing the transmission power gradually from the initial value at the transmission end when the pseudo error occurrence in an error-free reception does not fulfill a predetermined condition. The method also includes increasing the transmission power by a predetermined amount when the pseudo error occurrence in the error-free reception fulfills the predetermined condition.

Claim 24 recites a radio system. The radio system includes, at a receiving end, first means adapted to monitor pseudo error occurrence in a received signal and to produce a control signal indicating when pseudo errors are detected and when the pseudo error occurrence in an error-free reception is below a predetermined condition. A pseudo error defines an instant when a right bit or symbol decision was made, or the margin for the right bit or symbol decision was smaller than a limit value so that an actual error did not occur. The radio system also includes, at a transmitting end, second means for

adjusting transmission power responsive to the control signal by decreasing the transmission power when the pseudo error occurrence in the error-free reception does not fulfill the predetermined condition and by increasing the transmission power when the pseudo error occurrence fulfills the predetermined condition.

Independent claim 27 contains the patentable features of claim 24, but recites a radio receiver configured to monitor pseudo error occurrence. Independent claim 28 also is similar to claim 24, but recites a radio transmitter configured to adjust transmission power responsive to a control signal.

As discussed in the specification, examples of the present invention enable the control of transmission power to be based on detecting pseudo errors in the transmission. Thus, situations are identified that are estimated as an error that nearly happened, but did not. For example, an error-free reception is provided that is monitored for pseudo error occurrence in the received signal. The pseudo error defines an instant when a right bit or symbol decision is made, but a margin for the right bit or symbol is smaller than a limit value so that an actual error nearly occurred. The actual error, however, did not occur. It is respectfully submitted that the cited reference of *Endo* fails to disclose or suggest all the elements of any of the presently pending claims. Therefore, *Endo* fails to provide the critical and unobvious advantages discussed above.

As discussed in the previous response, *Endo* relates to a transmission power control apparatus for a mobile communication system. *Endo* describes providing a reverse channel error rate judgment section in a radio base station for judging a

communication quality of the reverse channel by a detected reverse channel frame error rate. Referring to Figure 1 of *Endo*, decoder section 105 performs data error detection in a receiving signal digitized by the digital demodulation section 101, and outputs the result of detected errors to reverse channel error rate judgment section 103. *Endo* describes if a report is received indicating a frame error rate of the forward channel being unfavorable, then the transmission power of the forward channel is to be increased. If the report indicates a frame error rate report being too favorable, then the transmission power of the forward channel is decreased to reduce interference.

Applicants respectfully submit that *Endo* does not disclose or suggest all the features of the pending claims. For example, *Endo* does not disclose or suggest “decreasing the transmission power gradually from the initial value at the transmission end when the pseudo error occurrence in an error-free reception does not fulfill a predetermined condition” or “increasing the transmission power by a predetermined amount when the pseudo error occurrence in the error-free reception fulfills the predetermined condition,” as recited in claim 12. Claim 24 also recites these patentable features, but is drawn to a radio system. Claim 27 also recites these patentable features, but is drawn to a radio receiver configured to monitor pseudo error occurrence. Claim 28 also recites these patentable features but is drawn to a radio transmitter configured to adjust transmission power responsive to a control signal. Applicants submit that *Endo* does not disclose or suggest at least these features of the presently pending claims.

Applicants submit that Endo does not disclose or suggest decreasing or increasing the transmission power when a pseudo error occurrence in an error-free reception does or does not fulfill a predetermined condition. In contrast, Endo describes making changes in transmission power based on a frame error rate, which is based on actual errors. Endo sets the error rate to a predetermined level that is not based on a pseudo error occurrence in an error-free reception. The error rates of Endo are determined by performing data error detection and collecting data errors in the received signals. This aspect of Endo does not disclose or suggest using a pseudo error occurrence in an error-free reception to adjust the transmission power to a level where errors do not occur. In fact, Endo does not disclose or suggest using an error-free reception in its transmission power adjustments. Therefore, for at least these reason, applicants respectfully submit that all the features of claims 12-17, 19, 23-24 and 27-28 are not disclosed or suggested by Endo.

Claims 18 and 20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Endo in view of U.S. Patent No. 5,873,028 (Nakano et al.). The Office Action took the position that Endo taught all the elements of claims 18 and 20 except wherein a predetermined step is 1 dB. Nakano was cited as providing these elements of claims 18 and 20 missing from Endo. Applicants respectfully submit that the cited references, either alone or in combination, do not disclose or suggest all the features of any of the presently pending claims.

Claims 18 and 20 depend directly or indirectly from independent claim 12. Claim 12 is summarized above. Applicants submit that claims 18 and 20 recite the patentable features of claim 12.

Endo also is summarized above, and applicants submit that Endo does not disclose or suggest all the features of claims 18 and 20 for at least the reasons given above. Applicants also submit that Nakano, either alone or in combination with Endo, does not disclose or suggest those features of the claims missing from Endo.

Nakano relates to transmission power control apparatus and method in a mobile communication system. Nakano describes suppressing the transmission power to an absolute necessary minimum level and increasing subscriber capacity by reducing an amount of interference. For example, the transmission power of a first mobile station 1a is controlled such that a difference between a reception CIR at first base station 3a with respect to first mobile station 1a and first base station target CIR becomes smaller, while the transmission power of the second mobile station 1b is controlled such that a difference between a reception CIR at first base station 3a with respect to second mobile station 1b and a second base station target CIR becomes smaller.

Applicants submit that Nakano does not disclose or suggest decreasing the transmission power gradually from the initial value at the transmission end when the pseudo error occurrence in an error-free reception does not fulfill a predetermined condition or increasing the transmission power by a predetermined amount when the pseudo error occurrence in the error-free reception fulfills the predetermined condition, as

discussed above. Nakano does not disclose or suggest using pseudo error occurrences for controlling the transmission power. Instead, Nakano describes reducing a difference between a reception CIR and a base station target CIR among mobile and base stations. This aspect of Nakano does not disclose or suggest decreasing or increasing the transmission power when the pseudo error occurrence in an error-free reception does or does not fulfill a predetermined condition. Thus, applicants submit at least these features are not disclosed or suggested by the cited references, either alone or in combination.

Further, claims 18 and 20 depend directly or indirectly from claim 12. If an independent claim is nonobvious, then any dependent claim is also nonobvious. MPEP 2143.03. Because independent claim 12 is nonobvious, claims 18 and 20 also are nonobvious. Thus, for at least these reasons, applicants submit that claims 18 and 20 are not disclosed or suggested by the cited references, either alone or in combination.

Claims 21-22 and 25-26 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Endo in view of U.S. Patent No. 5,878,329 (Mallinckrodt). The Office Action took the position that Endo taught all the elements of claims 21-22 and 25-26 except using forward error correction in the transmitted signal, decoding the signal at the receiving end by means of a forward error correction decoder, and interpreting the correction made by the forward error correction decoder as pseudo errors. Mallinckrodt was cited as providing these elements of claims 21-22 and 25-26 missing from Endo. Applicants respectfully submit that the cited references, either alone or in combination, do not disclose or suggest all the features of any of the presently pending claims.

Claims 21-22 depend directly from claim 12. Claim 12 is summarized above. Applicants submit that claims 21-22 recite the patentable features of claim 12.

Claims 25-26 depend directly from claim 24. Claim 24 is summarized above. Applicants submit that claims 25-26 recite the patentable features of claim 24.

Mallinckrodt relates to a power control of an integrated cellular communications system. Mallinckrodt describes the power controlled by monitoring the bit error rate and the signal-to-noise ratio. Mallinckrodt describes controlling the power output levels of transmitters to a minimum necessary for satisfactory communications. Each transmission includes a code representative of the transmitter output level. The receivers compare this code to the received signal strength and adjust their associated transmitter power output levels accordingly. The bit error rate and the signal-to-noise ratio are monitored by receivers to develop a measure of signal quality.

Applicants submit that Mallinckrodt does not disclose or suggest decreasing the transmission power gradually from the initial value at the transmission end when the pseudo error occurrence in an error-free reception does not fulfill a predetermined condition or increasing the transmission power by a predetermined amount when the pseudo error occurrence in the error-free reception fulfills the predetermined condition, as discussed above. Mallinckrodt does not disclose or suggest using pseudo error occurrences for controlling the transmission power. Applicants submit that Mallinckrodt, like Endo, describes detecting actual errors in monitoring the bit error rate and signal-to-noise ratio. The described monitoring of Mallinckrodt does not disclose or suggest

setting an initial value of the transmission power so that no pseudo errors are detected. Further, Mallinckrodt does not disclose or suggest decreasing or increasing the transmission power based upon the occurrence of the pseudo errors fulfilling or not fulfilling a predetermined condition. Thus, the cited references, either alone or in combination, do not disclose or suggest at least these features of claims 21-22 and 25-26.

Further, claims 21-22 and 25-26 depend directly from claims 12 and 24, respectively. If an independent claim is nonobvious, then any dependent claim is also nonobvious. MPEP 2143.03. Because independent claims 12 and 24 are nonobvious, claims 21-22 and 25-26 also are nonobvious. Thus, for at least these reasons, applicants submit that claims 21-22 and 25-26 are not disclosed or suggested by the cited references, either alone or in combination.

Applicants also submit that new claims 29-35 also are not disclosed or suggested for at least the reasons given above, and because the new claims recite additional patentable subject matter. Thus, new claims 29-35 are patentable over the prior art and should be allowed.

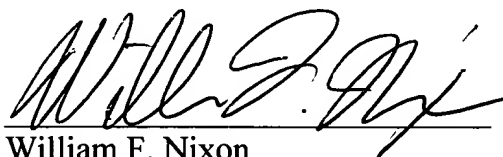
It is respectfully submitted that each of claims 12-35 recites subject matter that is neither disclosed nor suggested by the cited references. It is therefore respectfully requested that all of claims 12-35 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'William F. Nixon', written over a horizontal line.

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Enclosures: Request for Continued Examination (RCE)
Additional Claim Fee Transmittal